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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,766	11/03/2005	Georg Stoppelmann	STOPPELMANN2	6934
1444 7590 05/03/2010 BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303			EXAMINER USELDING, JOHN E	
			ART UNIT 1796	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,766	Applicant(s) STOPPELMANN ET AL.	
	Examiner John Uselding	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-16 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/20/2010 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1, 2, 4-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maxfield et al. (WO 93/04117) in view of Frank (5,217,762) and Umetsu et al. (6,121,388).

Regarding claims 1-6, 9, 11 Maxfield et al. teach a method of producing a polyamide nanocomposite from a partially crystalline polyamide such as nylon 6 or nylon 66 (page 28, lines 12-20 and examples) and organically modified layered silicates that are phyllosilicates of the three-layer type (2:1) (page 7, line 23 to page 15, line 20, examples). Maxfield et al. teach dosing the polyamide in a double screw extruder and

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melting it followed by adding modified layered silicate into the extruder (page 30, lines 15-37, and examples). Maxfield et al. teach that the mixing ratio of polyamide to silicate is without limitation (page 3, line 36 to page 4, line 5). They teach examples where the modified layered silicate is less than 10% of the polyamide nanocomposite (Tables 2 and 4). They teach examples where the modified layered silicate has a final concentration of 2.5% and 2.95% (Tables 2 and 4) and Maxfield et al. teach adding the polymer as a granulate (page 7, lines 30-34).

Maxfield et al. differs from the Applicant's claim in that they add the polyamide all in one step instead of mixing part of the polyamide with the silicate and then adding the rest of the polyamide later.

The difference consists in a difference of the order of mixing the components. The selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. See MPEP 2144.04. *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results); see also *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is *prima facie* obvious.). In the absence of unexpected results it would have been obvious to add all the polyamide at once or to add it in stages. Since the final concentration of the layered silicate is the same the total amount of the polyamide added must also be the same. It is known in the art that when using a double screw extruder and mixing a polyamide resin composition in stages to add the later stage polymer through a side feeder. See Umetsu et al. (column 9, lines 29-49).

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Maxfield et al. fail to teach filtering their melt, the location of the filtration, the step the filtration occurs in, and the mesh size of the filters used.

Frank teaches a method of melt processing thermoplastic polymer such as polyamides to reduce the irregularities in extrusion (column 1, lines 16-69). They teach that inserting a filter in line after the extruder to reduce flow irregularities (column 6, lines 1-5). It would have been obvious to have placed the filter either before or after the extruder nozzle in the absence of unexpected results.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the filtration method of Frank in the process of Maxfield et al. to provide a process of producing a polyamide nanocomposite with reduced flow irregularities.

Frank teach that one can modify his design depending on the composition used (column 6, lines 48-54). Since Maxfield et al. filtered their silicate at 75 microns (page 39, lines 1-10) it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the filter size at 75 microns so as to retain the benefits of Frank without causing harm to the composition of Maxfield et al.

Regarding claim 8: Maxfield et al. teach that their silicate material is exfoliated (page 3, lines 20-24; page 4, lines 25-28). Maxfield et al. teach that the average particle size of the silicate has one dimension that is less than 100 (page 5, lines 13-20)

Regarding claim 10: Maxfield et al. teach that their polyamide is a mixture of polyamides (column 25, lines 32-34) which includes amorphous polyamides (page 26, lines 13-17).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maxfield et al. (WO 93/04117), Frank (5,217,762), and Umetsu et al. (6,121,388) as applied to claim 1 above in view of Oswald (4,136,103).

Maxfield et al. and Frank teach what is listed above.

While Maxfield et al. does teach that the organic modifier for montmorillonite can be a phosphonium salt with alkyl groups and Cl, Br, or I (page 7, line 23 to page 15, line 20) they fail to teach the exact structure as claimed.

Oswald teach a phosphonium salt modified montmorillonite (column 12, lines 34-68). It provides thermal stability and reinforcement at the same time (column 3, lines 42-46). They teach that it is modified using phosphonium salts of the formula $P-R_4$ (page 3, line 58). The R substituents is preferably an alkyl or substituted alkyl with 40 carbons (column 3, lines 65-66). The alkyl can be substituted with a Cl, Br, or I (column 4, line 8). The phrase "three alkyl or aryl residues" can be interpreted in a multitude of ways. The examiner takes the position that the applicant is referring to an alkyl group that has at least 3 carbon atoms. Any number of carbons over three can just be divided into 3 separate alkyl groups. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected at least 3 carbons from the 3-40 carbon range and substitute the alkyl with a Cl, Br, or I. Oswald also teaches montmorillonite modified by trialkyl phosphonium chlorides (column 13, lines 48-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the montmorillonite modified with a phosphonium salt

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of Oswald as the montmorillonite modified by an organic salt of Maxfield et al. to provide both reinforcement and thermal stability to their composition.

Claim 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. (JP 2000-322919).

Fujimoto et al. teach making lamp reflectors for exterior illumination [0001-0002]. One of ordinary skill would immediately envisage a reflector for vehicle driving illuminations, signal, or street lights as species of the lamp reflectors genus. It is noted that the particular reflectors claimed are merely intended uses of the molding compounds. The polyamide nanocomposite molding compound comprises partially crystalline polyamide [0009] and organically modified layered silicates [0011-0015]. The layered silicate is 1-10% of the composition [0014]. They teach an example where it is 4% [0019]. Since the composition of Fujimoto et al. is the same as claimed and the process is similar it is the position of the Office that the nanocomposite of Fujimoto et al. possesses the claimed characteristics of the polyamide nanocomposite molding compound. Fujimoto et al. teach the method of injection molding the nanocomposite into a reflector [0017].

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. (JP 2000-322919) as applied to claim 17 above further in view of Catlin (5,819,408).

Fujimoto et al. fails to teach gas injection molding during injection molding.

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Catlin teaches gas injection molding of thermoplastic resins into parts to provide variable thickness in the adjacent sections in the same mold, and produce stiff lightweight parts. This is taught as an improved alternative to injection molding (column 16, lines 29-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the gas injection molding process of Catlin during the injection molding to make the reflector of Fujimoto et al to provide variable thickness in the adjacent sections in the same mold, and produce stiff lightweight reflectors.

Response to Arguments

Applicant's arguments filed 4/20/2010 have been fully considered but they are not persuasive.

The Applicant has alleged unexpected results of higher dispersibility and surface quality by dosing the polyamide in distinct steps. This is not persuasive because the Applicant does not have any data to support the assertion. The only comparative example appears to use the same dosing method but uses a calcium carbonate in place of the silicate and in a significantly higher amount. The Applicant does not have comparative examples to support unexpected results over the method of Maxfield et al. (adding all of the polyamide at once instead of dosing in two stages). The Applicant has pointed to the Specification which states that there is an unexpected result but a mere statement is insufficient. The Office cannot evaluate whether or not there are unexpected results without actually seeing the data of the results.

The Applicant has state that for an obvious selection of an order of mixing steps these steps must be known. The steps are known. It is known that one can all of one component at a time or in stages. Therefore, in the absence of unexpected results it is obvious to add all of one component at a time or in stages. Also, as shown in the previous office action, Bagrodia et al. teach the method of dosing polyamide in distinct steps.

The Applicant has stated that Umetsu is irrelevant because a different composition is used than is claimed. Umetsu was not used for the composition taught but merely to show that it is an established technique in the art to add a later stage polymer through a side feeder.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

With regard to the filtration step the Applicant has discussed the reference individually and not in combination. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

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See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Applicant has asserted that Frank does not deal at all with the problem of the present invention, namely low dispersibility. The prior art need not have the same motivation to combine the reference as the Applicant has. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Also, the Applicant has not shown that the filtration leads to an unexpected improvement in dispersibility of the layered silicates.

The Applicant has asserted that the amendments to claims 17 and 18 remove the product by process limitations. This is incorrect. The claims still include a polyamide nanocomposite made by the method of claim 1, which is a nested product by process limitation. Since the Applicant has failed to show any structural differences using their method versus any other method, when the composition is the same, the rejections are still applicable.

Conclusion

This is a Request for Continued Examination of applicant's Application No. 10/526766. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS**

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MADE FINAL even though it is a first action in this case. See MPEP § 706.07(b).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Uselding whose telephone number is (571)270-5463. The examiner can normally be reached on Monday-Thursday 6:00am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1796

/JU/
Examiner
Art Unit 1796